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10/748,950	12/30/2003	Roger M. Ikeda	TI-37410	7897

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EXAMINER	
KOZIOL, STEPHEN R	

ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
11/16/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/748,950	IKEDA, ROGER M.	
	Examiner	Art Unit	
	Stephen R. Koziol	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/08/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/30/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments with respect to amended claims 1-20 have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Amended claim 1 introduces the limitation of a second frame in addition to a previously claimed first frame from which a histogram module collects data, comprising at least a first and second plurality of pixels. Amended claim 1 also introduced the limitation of a processor capable of determining a first and ... a second position of the adjustable aperture based at least in part on the first position. (See claim 1 as amended 10/08/2007).

The newly added limitations to claim 1 summarized in the above paragraph fail to find support in the original disclosure filed 12/30/2003 and therefore constitute new matter under 35 USC § 112 first paragraph. The original specification filed 12/30/2003 makes very clear that the histogram

module operates upon a *first frame*, and only a *first frame* while collecting data received by the control module. For example, see at least par. 0005 of the specification, which recites:

- "a histogram module operable to collect data associated with a *first frame* of a signal received by the control module. The histogram module comprising a plurality of storage modules capable of counting a plurality of pixels associated with the *first frame*." (emphasis added)

Par. 0006 of the specification further recites a method embodiment of the above process disclosing use of only a singular *first frame*. The remainder of the original disclosure similarly fails to support the "second frame" limitation.

With regard to the newly added limitation of ... a second position of the adjustable aperture based at least in part on the first position, the specification makes clear that a only a single target aperture position was considered by applicant upon filing the original disclosure. For example see par. 0005 of the original specification, which in part recites:

- "The control module further comprises a processor capable of determining *a new position* of an adjustable aperture based at least in part on the data collected by the histogram module." (emphasis added)

Note the language "*a* new position" in par. 0005. As exemplified by par. 0005, the application as a whole fails to contain any language that would teach or suggest, "a second position of the adjustable aperture based at least in part on the first position" as newly amended claim 1 now recites. For at least the above reasons, claim 1 as amended 10/08/2007 is not supported by the originally filed disclosure and is considered new matter under 35 USC § 112 first paragraph.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims (1-3, 5, 7-9, 11, 17-18, and 20) are rejected under 35 U.S.C. 102(b) as being anticipated by Kurematsu US 2002/0105621 A1, hereinafter, Kurematsu.

Regarding newly amended claim 1, Kurematsu teaches a control module for use in an image display system (Abstract, fig. 1), comprising:

i. a histogram module operable to collect data associated with a first frame and a second frame of a signal received by the control module, the histogram module comprising a plurality of bins capable of counting a first and second plurality of pixels associated respectively with the first and second frames, wherein ~~each~~ of the first and second plurality of pixels each comprises a respective maximum intensity component at a particular color level (fig 4A-B, fig 5A-B, also, par. 0073-0074, where the maximum intensity component is Kurematsu's "maximum luminance" and par. 0073, where Kurematsu discloses operating upon *each frame* of the input signal); and

ii. a processor capable of determining a first ~~new~~ position of an adjustable aperture (projection light amount means) based at least in part on at least a position of the data collected by the histogram module, and a second position of the adjustable aperture based

at least in part on the first position, (fig 1 item 20 acts as the aperture adjusting processor, also par 0082 teaches "the amount of projection light is controlled in conformity with the maximum luminance level of the input signal." Also see at least pars. 0084 and 0098 where it becomes clear that Kurematsu discloses a plurality of adjustable aperture positions, each new position for a given image frame necessarily responsive to, and dependant upon, the previous aperture position.), the processor further capable of determining a gain to apply to the second ~~a subsequent~~ frame of the signal based at least in part on the second ~~new~~ adjustable aperture position (par 0080, where gain, or "amplify the signal," is applied in response to change in the amount of projected light).

Regarding claim 2, Kurematsu teaches a control module for use in an image display system (Abstract, fig. 1) wherein the processor determines the position of the adjustable aperture based at least in part on the data collected by the histogram module (fig 4A-B and fig 5A-B, also, par 0074) and on a parameter associated with a number of clipped pixels (fig 4A-B and fig 5A-B, also, par 0074, where Kurematsu sets a maximum luminance level based on the histogram, and pixels above said maximum luminance value are thus "clipped").

Regarding claim 3, Kurematsu teaches a control module for use in an image display system (Abstract, fig. 1) wherein the parameter associated with the number of clipped pixels comprises no more than a small fraction of the total number of pixels with a modulator (fig 4A-B and fig 5A-B, also, par 0074, where Kurematsu's maximum luminance, and consequently total number of clipped pixels, is five percent).

Regarding claim 5, Kurematsu teaches a control module for use in an image display system (Abstract, fig. 1) wherein the adjustable aperture selectively varies an amount of light transmitted along a projection path Fig 1 item 20, also, par 0068).

Regarding claim 7, Kurematsu teaches a control module for use in an image display system (Abstract, fig. 1) wherein the processor determines a new position of the adjustable aperture based on a step size to move the adjustable aperture and a target aperture position (fig 1 item 20, also, pars 0079-0080).

Regarding claim 8, Kurematsu teaches a control module for use in an image display system (Abstract, fig. 1) further comprising:

i. a memory coupled to the processor and capable of storing data associated with an image intensity algorithm (pars 0074 and 0096-0097);

ii. a video processing module coupled to the histogram module and capable of processing the received signal on a frame-by-frame basis (fig 1 item 30, also, par 0072 & 0073, where Kurematsu's control signal generating means is responsible for processing the received input signal on a frame-by-frame basis); and

iii. a gain module coupled to the video processing module and the processor, the gain module capable applying the gain to the subsequent frame received by the control module (fig 1 item P, also, par 0080 where gain, or "amplify the signal," is applied in response to change in the amount of projected light).

Regarding claim 9, Kurematsu teaches a method of controlling a position of an aperture in an image display system (Abstract, fig 1), comprising:

i. determining a target aperture position based at least in part on a parameter associated with a number of clipped pixels and data stored in a histogram, wherein the data stored in the histogram comprises data of a first frame (figs 4A-B and 5A-B, also, pars 0074 and 0082 where "the amount of projection light is controlled in conformity with the maximum luminance level of the input signal" which is determined by the histogram data);

ii. determining a step size to move the aperture based at least in part on a current background storage module and a magnitude of a difference between the target aperture position and a current aperture position (fig 1, also, pars 0079-0080, where a luminance level of 255 acts as the background storage module value for the light modulating element P, and the difference between the target aperture position and a current aperture position is controlled by said light modulating element P); and

iii. determining a gain to apply to a subsequent frame based at least in part on a new aperture position, wherein the new aperture position is based at least in part on the current aperture position and the step size to move the aperture (pars 0072-0073 and 0080, where the luminance, and thus aperture positions, of a succession of input frames is compared.)

Claim 11 has been analyzed and is rejected with respect to the discussion in claim 3 above, as the limitation in claim 11 are identical to the limitations in claim 3, despite those limitations manifesting in method form in claim 11 as opposed to apparatus form in claim 3.

Regarding newly amended claim 17, Kurematsu teaches a control module for use in an image display system, comprising (Abstract, fig 1):

i. a processor capable of determining a new position of an adjustable aperture based at least in part on a step size to move the adjustable aperture and a target aperture position, wherein the target aperture position is based at least in part on data of a first frame received by the control module (fig 1 item 20 acts as the aperture adjusting processor, also par 0082 teaches "the amount of projection light is controlled in conformity with the maximum luminance level of the input signal"); and

ii. a gain module coupled to the processor, the gain module capable of applying a gain to a subsequent frame received by the control module, wherein the amount of gain applied to the subsequent frame is based at least in part on the new adjustable aperture position (fig 1 item P, also, par 0080 where gain, or "amplify the signal," is applied in response to the new adjustable aperture position or, "change in the amount of projected light").

Regarding claim 18, Kurematsu teaches a control module for use in an image display system (Abstract, fig 1) wherein the processor is further capable of determining a gain to apply to a subsequent frame based at least in part on the new adjustable aperture position (fig 1 item P,

also, par 0080 where gain, or "amplify the signal," is applied in response to the new adjustable aperture position or, "change in the amount of projected light").

Regarding claim 20, Kurematsu teaches a control module for use in an image display system (Abstract, fig 1) wherein the processor determines the target aperture position based at least in part on the data collected by a histogram (fig 4A-B and fig 5A-B, also, par 0074) and on a parameter associated with a number of clipped pixels (fig 4A-B and fig 5A-B, also, par 0074, where Kurematsu sets a maximum luminance level based on the histogram, and pixels above said maximum luminance value are thus "clipped").

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims (4, 10, 14-15) are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu US 2002/0105621 A1 in view of Tintera US 5,745,808, hereinafter, Tintera.

Regarding claim 4, Kurematsu in view of Tintera as a whole teaches a control module for use in an image display system (Kurematsu, Abstract, fig. 1) wherein the processor determines the gain

to apply to the subsequent frame (Kurematsu, fig 6A-B, also pars 0082-0083, and, 0096-0097). Kurematsu does not explicitly state the gain to be applied to the subsequent frame is performed by accessing an aperture position to gain table. However, Tintera does teach the gain applied to subsequent frames is performed by accessing an aperture position to gain table (Tintera, fig. 3A-B and fig. 6, also, col. 3, ln. 55-67). Taking the combined teaching of Kurematsu and Tintera as a whole, it would have been obvious to modify the disclosed aperture position to gain relationship of Kurematsu to the form of the aperture position to gain table of Tintera for the benefit of automating gain control in an image display system.

Regarding claim 10 Kurematsu in view of Tintera as a whole teaches a method of controlling a position of an aperture in an image display system (Kurematsu, Abstract, fig 1) wherein determining the target aperture position comprises:

i. determining a histogram storage module that contains a pixel equaling the parameter associated with the number of clipped pixels (Kurematsu, fig 4A-B and fig 5A-B, also, par 0074, where Kurematsu sets a maximum luminance level parameter based on the histogram, and pixels above said maximum luminance parameter value are thus "clipped" pixels); and

ii. accessing a target aperture position table based on the histogram storage module that contains the pixel equaling the parameter associated with the number of clipped pixels (see claim 4 discussion).

Claim 14 has been analyzed and is rejected with respect to the discussion in claim 4 above, as the limitation in claim 14 are identical to the limitations in claim 4 supra.

Regarding claim 15, Kurematsu in view of Tintera as a whole teaches a method of controlling a position of an aperture in an image display system (Kurematsu, Abstract, fig 1) wherein the aperture position to gain table (see claim 4 discussion) comprises 256 positions (Kurematsu, par. 0074, where 0-255 aperture position stops are disclosed). Taking the combined teaching of Kurematsu and Tintera as a whole, it would have been obvious to modify the disclosed aperture position to gain table of Tintera to include the 256 positions taught by Kurematsu.

8. Claims (13 and 16) are rejected under 35 U.S.C. 103(a) as being unpatentable Kurematsu US 2002/0105621 A1 in view of Kondo et al. US 5,258,848, hereinafter, Kondo.

Regarding claim 13 Kurematsu in view of Kondo as a whole teaches a method of controlling a position of an aperture in an image display system (Kurematsu, Abstract, fig 1) wherein determining the step size to move the aperture comprises:

i. determining a histogram storage module that contains a pixel equaling a background pixel value and storing that histogram storage module as the current background storage module (Kurematsu fig 1, also, pars 0079-0080, where a luminance level of 255 acts as the background storage module value for the light modulating element P);

ii. determining a magnitude of a difference between the current background storage module and a preceding background storage module (Kurematsu, fig 1, also, pars 0079-0080, where a luminance level of 255 acts as the background storage module value for the light

modulating element P, and the difference between the target aperture position and a current aperture position is controlled by said light modulating element P);

Kurematsu dose not explicitly teach, however Kondo does teach:

iii. if the magnitude of the difference between the current background storage module and the preceding background storage module exceeds a large storage module change threshold, setting the aperture step size to a maximum movement value (Kondo, fig. 2 (item 13) and fig. 3, also, col. 3, ln. 40-51,where Kondo teaches the aperture step size is set to a maximum movement value when a large storage module change threshold is exceeded) ;

iv. otherwise: determining the magnitude of the difference between the current aperture position and the target aperture position (Kondo, col. 3, ln. 18-40);

v. if the magnitude of the difference between the current aperture position and the target aperture position exceeds a large aperture movement threshold, setting the aperture step size to a large movement value (Kondo, fig. 2 item 6, and fig 3, also, col. 3, ln. 40-51);

vi. otherwise setting the aperture step size to a minimum movement value (Kondo, fig. 2 item 6, and fig 3, also, col. 3, ln. 40-51).

Taking the combined teaching of Kurematsu and Kondo as a whole, it would have been obvious to modify the disclosed aperture position to gain relationship control of Kurematsu with that of Kondo for the benefit of automating gain control in an image display system.

Regarding claim 16, Kurematsu in view of Kondo as a whole teaches a method of controlling a position of an aperture in an image display system (Kurematsu, Abstract, fig 1) further comprising:

i. comparing the new aperture position to the target aperture position (Kondo, col. 3, ln. 18-40); and

ii. determining whether the new aperture position will exceed the target aperture position (Kondo, fig. 2 (item 13) and fig. 3, also, col. 3, ln. 40-51;

iii. if the new aperture position will exceed the target aperture position, then limit the step size to move the aperture to a limited step size to prevent the new aperture position from exceeding the target aperture position (Kondo, fig. 2 (item 13) and fig. 3, also, col. 3, ln. 40-51, and, col. 4, ln. 60-67 cont' col. 5, ln. 1-8);

iv. otherwise move the aperture based on the step size (Kondo, fig. 2 (item 13) and fig. 3, also, col. 3, ln. 40-51, and, col. 4, ln. 60-67 cont' col. 5, ln. 1-8).

Taking the combined teaching of Kurematsu and Kondo as a whole, it would have been obvious to modify the disclosed aperture position to gain relationship control of Kurematsu with that of Kondo for the benefit of automating gain control in an image display system.

9. Claims (6, 12, and 19) are rejected under 35 U.S.C. 103(a) as being unpatentable Kurematsu US 2002/0105621 A1.

Regarding claim 6, Kurematsu teaches a control module for use in an image display system (Abstract, fig. 1) wherein the histogram storage modules operate to count the maximum intensity component of a particular color level (fig. 4A-B, par. 0073-0074). Kurematsu does not teach the

histogram storage module comprises exactly thirty-two storage modules. However, Official Notice is taken to note that based on the amount of processed histograms needed to be stored in Kurematsu's disclosed histogram storage modules (par. 0073-0074), it would have been obvious, practical, and desirable for one of ordinary skill in the art at the time of the invention to modify Kurematsu's number of histogram storage modules within a range including thirty-two histogram storage modules for the benefit of counting the maximum intensity component of a particular color level.

Claims 12 and 19 have been analyzed and are rejected with respect to the discussion in claim 6 above, as the limitation in claims 12 and 19 are identical to the limitations in claim 6 supra.

Response to Arguments

10. Applicant has amended claims (1 and 17).

Applicant's arguments filed October 08, 2007 have been fully considered but they are not persuasive.

Applicant alleges that claim 1 as amended, and all claims depending therefrom, is allowable because Kurematsu fails to teach or suggest each and every limitation of the amended claim 1. Applicant also alleges that claim 9, and all claims depending therefrom, is allowable at least because Kurematsu fails to teach "anything about a 'parameter associated with a number of clipped pixels.'" (Remarks pp. 7). Applicant further alleges that claim 17, and all claims

depending therefrom, is allowable at least because Kurematsu fails to teach "a step size to move the adjustable aperture to a target aperture position" (Remarks pp. 8).

Examiner respectfully disagrees.

With respect to amended independent claim (1) and all claims depending therefrom, see new grounds of rejection above, which obviate Applicant's arguments dated 10/08/2007.

With respect to independent claim (9) and all claims depending therefrom, Applicant alleges Kurematsu fails to teach "anything about a 'parameter associated with a number of clipped pixels'" and therefore that Kurematsu cannot teach the limitation of "determining a target aperture position" because said target aperture position is based the upon parameter associated with a number of clipped pixels. However, Kurematsu discloses means for calculating the luminance level of each frame of the input signal (par. 0073). Kurematsu also discloses use of at least a cumulative histogram of the luminance level of each pixel of each frame of the input signal (figures 4A-5B, and par. 0074). The histogram-based luminance determination as disclosed by Kurematsu as cited above necessarily accounts for any input pixels that may be "clipped," in this case, outside of the expected luminance range as defined by at least pars. 0073-0074. Therefore, contrary to Applicants allegations, Kurematsu does teach, "determining a target aperture position based at least in part on a parameter (luminance) associated with a number of clipped pixels and data stored in a histogram" as indicated above.

With further respect to independent claim (9) and all claims depending therefrom, Applicant alleges Kurematsu also fails to teach the limitation of, "determining a step size to move the aperture based at least in part on a current background storage module and a magnitude of a difference between the target aperture position and a current aperture position." However, Kurematsu does disclose in at least par. 0079 that the light amount control means (figure 1 item 20) controls the amount of light projected by the light-modulating element (figure 1 item P) by varying the aperture of the optical projection system (figure 1 item PL1) between 0-100%, where each percent of aperture opening between 0-100% equates to a "step size" which the aperture is moved. Said aperture movement is necessarily responsive to at least previous frame image data, including background pixel data, (see par. 0073, where luminance data from *each* frame of the input signal is utilized), in the process of arriving at the "target" aperture position claimed in at least claims 9 and 17.

With respect to independent claim (17) and all claims depending therefrom, Applicant argues Kurematsu fails to disclose each and every limitation of claim 17, specifically the "step size to move the aperture based on a target aperture position." However, these arguments have been addressed with respect to claim 9 in the preceding paragraphs.

In summary, claims (1-3, 5, 7-9, 11, 17-18, and 20) remain rejected under 35 U.S.C. 102(b). Claims (4, 6, 10, 12-16 and 19) remain rejected under 35 U.S.C. 103(a). New grounds of rejection under 35 U.S.C. 112 first paragraph were necessitated by Applicants amendment to claim 1.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steve Koziol whose telephone number is (571) 270-1844. The examiner can normally be reached on M - alt. F 8:00-5:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached at (571) 272-7413 . Customer Service can be reached at (571) 272-2600. The fax number for the organization where this application or proceeding is assigned is (571) 273-7332.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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